Fire Weather Services

Vision

To eliminate weather-related wildland fire fatalities and injuries, and to reduce fire suppression and land management costs by providing more timely and accurate weather information.

Concept of Operations

When fuels and meteorological conditions warrant, WFO forecasters issue Fire Weather Watches and Red Flag Warnings for fire weather patterns that contribute to extreme fire danger. Site specific forecasts may also be generated for land agencies to track wildland fires.

Fire Weather Services also provide on site meteorological support to wildland fires. This is done by sending specially trained Incident Meteorologists (IMET) to the fire location.

The Storm Prediction Center (SPC) issues national outlooks identifying critical fire weather patterns.

Locally, NWS forecasters produce meteorologically consistent gridded forecast databases, including fire weather parameters. From these databases, fire weather zone forecasts are issued for presuppression planning, and for the National Fire Danger Rating System (NFDRS).

Customer and Partner Requirements

Probabilistic fire-related forecast products should include the following:

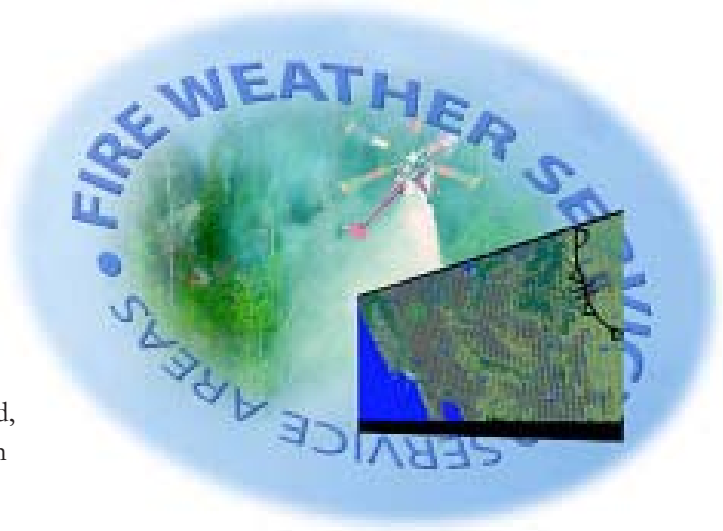
- ✓ Probabilistic outlooks for critical fire weather patterns (days 2-7),
- ✓ Smoke management information, and
- ✓ High resolution forecast/model grids for input into fire behavior/fire danger tools.

Product and Service Change

- ✓ Develop Fire Weather Relative Humidity, 20 foot wind, Haines Index, Transport Wind, and Mixing Height grids for NDFD.
- ✓ Develop and test probabilistic medium range fire weather and fire danger guidance.

Performance Measures

Performance measures in Fire Weather have traditionally been recorded in the fire-prone Western U.S. The Fire Weather program has recently been expanded in the NWS. National baseline measurements of warning and watch parameters will be developed over the next few seasons. Until new baselines have been produced, performance measures will be based on Western U.S. numbers.



Fire Weather Performance Measures

Year	Red Flag Probability of Detection	Red Flag Lead Time*
2004	90 percent	9.5 hours**
2003	89 percent	9.3 hours**
1999 - 2002	89 percent	9.2 hours**

** Based on Western US Performance*
*** For wind and low Relative Humidity events only*

Milestones by Quarter

1st Quarter

- Develop fire weather elements in NDFD. (Milestone met, 1st quarter)

2nd Quarter

- Collect fire season 2003 national statistics for Red Flag Warnings and establish a national baseline. (Milestone met, 2nd quarter)

3rd Quarter

- Conduct incident meteorologist work shop and fire weather forecasting course in Boise, ID. (Milestone met, 3rd quarter)

4th Quarter

- Begin local Graphical Forecast Editor capability on site for wildfire support.

Integrated Requirements

The AWIPS supports fire weather operations at WFOs. The land management agencies operate observation platforms, and RAWS, and support fire weather. In this capacity, AWIPS is used as a communications interface. With ever-increasing demand for spot forecasts, the spot forecast system needs to be integrated into AWIPS to take advantage of available digital forecasts, and to increase efficiency of forecasters by using one system.

Link to Science and Technology Infusion Plan

The 10 year goal of Fire Weather Services is to improve on site and site-specific wildland fire support capabilities, and to provide probabilistic weather information for enhanced planning and decision making. Better on site and site-specific support will improve fire-scale observations, higher resolution fire weather modeling, and routine verification of products and services.

Science and Technology Requirements

Solutions to several science and technological requirements for Fire Weather Services will be investigated in FY 04. National and regional customers are interested in probabilistic forecast information for resource decision-making. Similar projects at the NCEP will be leveraged to produce test products for fire weather.

Fire Weather Performance Measures

NCEP is also supporting IMETs by running mesoscale model forecasts for active fire areas. In 2003, NCEP ran the Nested Mesoscale Model at 8 km horizontal resolution for varying domains. These runs supported IMETS at active wildfires. The plan for 2004 may include 4 km resolution support. The NWS is also investigating methods to push digital forecast data into land management agency applications. The availability of the NDFD will allow some tests to commence using the NFDRS as a test-bed.

Training

- ✓ Conduct annual IMET Workshop.
- ✓ Conduct the S-591 Fire Weather Forecaster's course.

Outreach

Fire Weather Services are actively involved with customers at the national and local levels. NWS will participate in several national interagency working teams in 2004 including:

- ✓ Fire Danger Working Team
- ✓ Fire Weather Working Team
- ✓ Predictive Services Working Team

These teams discuss and work on national issues related to fire danger, fire weather, and fire behavior. At the local level, most WFOs with fire weather programs will meet with customers twice during the next year.

Dissemination

Include RAWS on Emergency Manager's Weather Information Network (EMWIN).

Verification

Verification measures in Fire Weather have been sporadic and focused primarily on the fireprone western U.S. In 2004, the requirements will be developed to add verification data for Red Flag Warnings and Fire Weather Watches to the national baselines developed in 2003. In the future, the baseline will be used to adjust national performance measures. Requirements for generating baselines for NFDRS for temperature, relative humidity, and wind will be explored.

Regional Initiatives

Central

- ✓ Analyze prototype CR Fire Weather Watch/ Red Flag Warning verification methodology and statistical output.
- ✓ Effectively coordinate with regional Geographic Area Coordination Center Predictive Services Meteorologists with the goal of improving products and services.

Contact Information

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Fire suppression efforts in Montana